Work Assignment SOW

Title: An Innovative Approach to Identifying and Defining Vulnerabilities, Risk, and Community Resilience for Superfund Sites

Contractor: IEc, Inc. **Contract No.:** EP-W-10-002

Work Assignment Number:

Estimated Period of Performance: Date of issuance to September 19, 2014

Estimated Level of Effort: 440 hours

Work Assignment COR (WA COR):
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Background and Purpose: An Innovative Approach to Defining Vulnerabilities, Risk, and Community Resilience for Superfund Sites

The definition of community resilience is the sustained ability of a community to withstand and recover from adversity (e.g., natural or manmade disasters, public health pandemics, economic stressors, etc.). Community resilience entails the ongoing and developing capacity of the community to account for its vulnerabilities and develop capabilities that aid that community in (1) preventing, withstanding, and mitigating a stress or stressors; (2) recovering in a way that restores the community to a state of self-sufficiency and at least the same level of economic, environmental and public health and social functioning; and (3) using knowledge from a past response to strengthen the community's ability to withstand future incidents. [i]

While there is general consensus on the definition of resilience, there is less clarity on the precise roadmap to assess existing communities' vulnerabilities, and therefore predict their response to resilience-building process. In other words, we have limited understanding about the components that can be changed or the "levers" for action that enable communities to recover more quickly. [ii]

In EPA's Climate Change Adaptation Plan for cleaning up communities and advancing sustainable development, it states that "…EPA's highest priorities under this goal are to prevent and reduce exposure to contaminants and accelerate the pace of cleanups across contaminated sites and properties, including Brownfields, Resource Conservation and Recovery Act (RCRA), Corrective Action Facilities, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) "Superfund sites" and Leaking Underground Storage Tanks. A range of major climate change stressors may affect contaminated sites, which in turn could affect how EPA addresses contamination and manages cleanups." The plan describes a need for EPA to take vulnerabilities and risk assessments seriously, yet in the face of fiscal austerity; EPA programs do not have the tools or the methodologies to implement the analysis to meet the needs as defined.

This project is innovative as it builds EPA's capacity to identify methodologies and strategies for helping communities identify risks, rank risks, and plan to make them more resilient. To do so, this work addresses four key items. This project provides the following: (1) methodologies for identifying site vulnerabilities along with subsequent ranking based on identified vulnerabilities for existing Superfund sites. These methodologies are transferable to other EPA regions and programs (e.g., LUST and Corrective Action facilities, etc.); (2) builds on existing EPA resources through GIS analysis utilizing, the GIS capabilities already present within EPA regions which enables the development and adaptation by other GIS teams throughout the country with minimal effort and investment. This project will refine and identify the in-house resources that EPA currently has, and will also isolate any limitations of the datasets. This work will help define how to use existing information and GIS tools to complete a risk ranking using the vulnerability analysis; (3) provides a roadmap for community engagement centered around the concept of vulnerability and risk and facilitates communities identification of actions that foster resilience and the ability to cope with and adapt to a number of risks surrounding OSWER facilities and cleanup sites; and (4) helps Superfund Programs within each region to identify the types of risks that may effect the cleanup, maintenance, and security of sites on the National Priorities List (NPL).

The 2012 RAND report focuses on community resilience and public health. The report notes that little practical work has been done with communities on resilience and vulnerabilities. This is also true for environmental stressors. A search for resilience plans for hazardous waste sites yields a handful of international papers. If EPA is going to be a leader in resilience recovery, then investments must be made in identifying appropriate data and analyses on how to better equip communities.

Quality Assurance (QA) Requirements

Check [ ] Yes or [x] NO, if the following statement is true or false. The Contractor shall submit a written Quality Assurance Project Plan for any project that is developing environmental

measurements or a Quality Assurance Supplement to the Quality Management Plan for any project which generates environmental data using models with their technical proposal.

Work Assignment CORs will provide additional information here, if **Yes** is checked above

Tasks and Deliverables:

The WA COR will review all deliverables in draft form and provide revisions and/or comments to the contractor. The contractor shall prepare the final deliverables incorporating the WA COR's comments.

Contractor personnel shall at all times identify themselves as Contractor employees and shall not present themselves as EPA employees. Furthermore, they shall not represent the views of the U.S. Government, EPA, or its employees. In addition, the Contractor shall not engage in inherently governmental activities, including but not limited to actual determination of EPA policy and preparation of documents on EPA letterhead.

Task 1 - Prepare Workplan

The contractor shall prepare a workplan within 15 calendar days of receipt of a work assignment signed by the Contracting Officer. The workplan shall outline, describe and include the technical approach, resources, timeline and due dates for deliverables, a detailed cost estimate by task and a staffing plan. The WA COR, Contract Level COR and the CO will review the workplan. However, only the CO can approve/disapprove the workplan. The contractor shall prepare a revised workplan incorporating the Contracting Officer's comments, if required.

1a. Workplan within 15 calendar days of receipt of work assignment.
1b. Revised workplan within 14 calendar days of receipt of comments from the Contracting Officer, if required.

Task 2 - *Create a GIS methodology for determining vulnerability and risk ranking process for EPA programs and regions*. [Section: Element 1.1, para(s) 1& 3, page(s) 6]

The contractor shall work with the EPA Region 4 Geographic Information Systems (GIS) team to examine existing mapping of superfund sites and the surrounding communities on the NPL list and review existing information currently available as pertinent to this WA. The vulnerability assessment would use the existing GIS mapping resources. The vulnerability assessment shall take into account a number of factors (e.g., population density, geographic/topographic features, probabilistic models of severe weather events, vulnerable populations, EJ Screen, business/economic sensitivities, floodplains, existing remediation solutions and ability withstand severe weather, etc.). The analysis would use GIS to provide the baseline assessment. The Region 4 GIS team will identify existing data sets that it can use to help conduct the baseline assessment, which would involve looking at all the NPL sites in Region 4. Through the baseline assessment, the contractor shall assist the Region 4 GIS and Superfund staff in assessing the following: (1) what data sets need to be acquired to adequately determine relative vulnerabilities and risk? (2) what factors make certain sites more vulnerable than others?; and, (3) what remediation strategies shall be considered in a vulnerabilities assessment?

Based on the baseline assessment, the contractor shall document a methodology for how the region shall conduct a vulnerability assessment. Through the methodology, the contractor and the Region 4 team shall risk rank the vulnerable sites. The contractor shall help provide the basis for

the risk ranking (e.g., what factors should be weighted more heavily in determining vulnerability and risk) and second to help document the methodology used in the analysis so that other regions can apply the methodology to conduct the same work with their NPL sites . Using GIS, EPA will provide final maps of the risk ranked sites. EPA Region 4 Superfund will provide input from the Remedial Project Managers (RPMs) and others about additional factors that should be considered in the risk ranking. These additional factors shall be included in the vulnerabilities and risk ranking process methodology. Through this process, EPA will have a better understanding of potential future stressors that may impact their cleanup schedules and cleanup methodologies for existing NPL sites.

Deliverables and schedule under Task 2

2.a. Kick-off call with contractor, WA COR, and other identified organizations by mid-November 2013.

2b. Within 20 days of call, the WA COR will arrange up to 4 meetings (via teleconference, or webinar) with the Region 4 GIS and Superfund team to review existing GIS data sets and discuss factors to be included in the vulnerability analysis.

2c. The contractor shall complete a preliminary vulnerability analysis methodology within 20 working days of the final meeting with the WA COR and the Region 4 team. In consultation with the WA COR, the contractor shall identify whether a Word or another format is the best presentation format for the information.

2d. The final vulnerability analysis shall be provided to the WA COR after 7 working days of receipt of comments.

Task 3: - Community Resilience Roadmap for Priority NPL Sites [Section: Element 2, page(s) 9]

Existing research indicates that a community surrounding an NPL site has already had a stressor or multiple stressors placed on their community. Therefore, through the vulnerability analysis, it is possible that in the near-term or long-term future, existing NPL sites may experience additional stressors. The EPA Region 4 Superfund program will identify at least one community (based on the top 5 sites identified in Task 1) to work with on helping the community understand its vulnerabilities and help them prepare to be more resilient to future stressors. With the consent of the community, the contractor shall conduct the community resilience workshop to identify community assets and needs for the future, including Superfund cleanup needs for the site. Through the workshop, the contractor shall work with the community to develop a community resiliency framework, which shall include the community vision for adapting to stressors immediately in their community as well as additional stressors that may impact the cleanup of their NPL site. The contractor shall document the process used with the community and develop a community roadmap that can be replicated with other Superfund NPL communities nationwide.

Deliverables and schedule under Task 3

3a. Within 30 days of completion of Task 2, the WA COR shall provide the contractor with a selection of the community for the resilience workshop .

3b. The WA COR and the contractor shall at least three conference calls with the identified community to plan the community resilience workshop. The WA COR will work with additional EPA staff to identify appropriate additional stakeholders to participate in the community resilience workshop.

3c. The contractor shall travel to the community and complete the workshop that is not to last more than 2 days.

3d. Within 15 working days of the workshop, the contractor shall submit a draft of the community resilience roadmap to the WA COR.

3e. Within 7 days, the contractor shall revise the community roadmap and resubmit the the

community resilience workshop for the WA COR to share with the community for comment.
3f. Within 15 working days of the receipt of comments from the WA COR, the contractor shall provide a final report. In consultation with the WA COR, the contractor shall identify whether a Word or another format is the best presentation format for the information.

Summary of Deliverables and Dates:

1a. Workplan within 15 calendar days of receipt of work assignment.
1b. Revised workplan within 5 calendar days of receipt of comments from the, if required.
2a. Kick-off call with contractor, WA COR, and other identified organizations by mid-November 2013.
2b. Within 20 days of call, the WA COR will arrange up to 4 meetings (via teleconference, or webinar) with the Region 4 GIS and Superfund team to review existing GIS data sets and discuss factors to be included in the vulnerability analysis.
2c. The contractor shall complete a preliminary vulnerability analysis methodology within 20 working days of the final meeting with the WA COR and the Region 4 team. In consultation with the WA COR, the contractor shall identify whether a Word or another format is the best presentation format for the information.
2d. The final vulnerability analysis shall be provided to the WA COR after 7 working days of receipt of comments.
3a. Within 30 days of completion of Task 2, the WA COR shall provide the contractor with a selection of the community for the resilience workshop .
3b. The WA COR and the contractor shall at least three conference calls with the identified community to plan the community resilience workshop. The WA COR will work with additional EPA staff to identify appropriate additional stakeholders to participate in the community resilience workshop.
3c. The contractor shall travel to the community and complete the workshop that is not to last more than 2 days.
3d. Within 15 working days of the workshop, the contractor shall submit a draft of the community resilience roadmap to the WA COR for comment.
3e. Within 7 days, the contractor shall revise the community roadmap and resubmit the community resilience workshop for the WA COR to share with the community for comment.
3f. Within 15 working days of the receipt of comments from the WA COR, the contractor shall provide a final report. In consultation with the WA COR, the contractor shall identify whether a Word or another format is the best presentation format for the information.

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[i] "Building Community Resilience to Natural Disasters" RAND Publication 2011. http://www.rand.org/content/dam/rand/pubs/technical_reports/2011/RAND_TR915.pdf
[ii] Ibid.